USDA ▪ Forest Service
forest insect & disease management methods application group
2810 Chiles Rd. ▪ Davis, Ca. 95616

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NEWSLETTER

BACILLUS THURINGIENSIS PILOT PROJECTS TO BE CONDUCTED IN NEW MEXICO AND MONTANA

Plans are underway to conduct pilot control projects of Thuricide 16B and Dipel 4L, two commercial formulas of the bacterium Bacillus thuringiensis (B.t.), against the western spruce budworm. The projects will be conducted in Montana and New Mexico and are designed to provide information which will assist the land manager in managing western spruce budworm. Forest Pest Management is encouraging research cooperators to take advantage of this opportunity to investigate improved treatment strategies with B.t. Jack Barry of MAG is coordinating technical aspects of this project.

PESTICIDE SAFETY PUBLICATION NOW AVAILABLE

A new publication "Pesticide Safety--Guidelines for Personnel Protection" is being distributed. All but a few hundred copies remain of the original 6,000 printed and a second printing has been ordered. The publication provides information on the safe use of pesticides including handling, storing, and application with emphasis on individual protection. Personnel involved in planning and conducting pesticide application projects will find this a useful publication.

This publication was written under contract by James Singer, a free-lance journalist, who specializes in health and agricultural fields. Jim did an outstanding job as attested to by the many fine comments received and the high demand for copies.

Technical guidance and coordination were provided by FPM personnel Jack Barry, (MAG); Dennis Hamel, Tom Hofacker, (FPM/WO); Patricia Kenney, (MAG); Roger Sandquist, (R-6); and Brian Sturgess (R-5). The cover was designed by Dave Davies, Graphic Arts, R-5.

FIDIS STANDARDS ARE NOW PART OF FOREST SERVICE DIRECTIVES SYSTEM

Standards for reporting insect and disease status and loss under the Forest Insect and Disease Information System (FIDIS) are now part of the Forest Service Directives System. These were issued as FSM 3456 Interim Directive No. 4 in October 1980. These standards are intended primarily to provide comparable statewide data summaries for National status reporting, but also provide the structure for data collection at the Region, Forest and State planning levels.

The system presently provides for reporting two levels of information. Level I is a summary of acres infested by land ownership class (National Forest, State, other Federal, Private, etc.). Level II is a summary of loss information in terms of tree mortality and growth reduction. Specific data elements are presented for each level.

FIDIS will provide the overall direction for development of survey methods to quantify effects of insects and disease on forest resources. This is the first time a series of data elements and precision standards have been defined for reporting forest insect and disease status and loss.

WESTWIDE MOUNTAIN PINE BEETLE SURVEY PLANNED

A survey to obtain estimates of current mortality caused by the mountain pine beetle will be conducted westwide during the 1981 field season. This survey will be the first to provide Level II data for the Forest Insect and Disease Information System. All areas not included in previous surveys conducted since 1979 will be included in the survey. FPM staffs in the Northern (R-1), Rocky Mountain (R-2), Intermountain (R-4), and Pacific Northwest (R-6) Region will participate. The survey will provide statewide data on losses in both ponderosa and lodgepole pines for Oregon, Washington, Idaho, Utah, Wyoming and Montana.

Data obtained from this survey will satisfy a variety of requirements. For the first time, FPM will have quantitative data to include in resource assessments prepared under the Forest and Rangeland Renewable Resource Planning Act (RPA). In addition, since these data are "in place" they should be useful for planning salvage operations and to identify areas requiring thinning.

The sampling strategy is based on a multi-stage probability proportional to size design. Survey methods include aerial sketch mapping to identify and stratify outbreak areas, large scale color aerial photography to estimate numbers of dead trees and a small ground sample to correct actual photo counts and estimate volumes.

In order to insure that the FPM staffs involved in this survey will collect comparable data, a special workshop was held in Boise, Idaho, during February. This workshop consisted of formal lectures describing each phase of the surveys, "hands on" experience using some of the specialized equipment required to conduct the survey, and a laboratory exercise on data analysis. This workshop was organized by Bill White (R-2), Dave Holland (R-4) and Bob Young (MAG).

A step-by-step procedures manual which users can refer to was developed as a result of this workshop.

Jerry Knopf (R-4) and Bernie Rambo (R-2) practice with a Numonics digitizer.

Wayne Bousfield (R-1) outlines procedures for stratifying mountain pine beetle infestations at Boise Workshop.

CBG FOREST SPRAY MODEL AT FCCC

John Wong, with the assistance of the H.E. Cramer Co., Salt Lake City, Utah, has installed the Cramer/Barry/Grim (CBG) Model on-line at Ft. Collins. This model represents a significant advancement in predicting spray behavior. To the best of our knowledge this is the first model which combines canopy prediction, droplet evaporation, aircraft wake, meteorology, etc. Prior to incorporating evaporation in the model we were unable to account for a large percent of the spray volume presented to the atmosphere. It was suspected that a high percentage of the droplets and volume were being volatilized or lost to evaporation. Now there is a technique to predict what will be lost to evaporation. This model can be used to plan and conduct spray projects and can be used in the environmental evaluation process. By using the best technological methods available we will be in a better position to manage spray drift and to put more of the spray on the target.

DECISIONMAKING SYSTEM FOR AERIAL APPLICATION

Ketron, Inc., an Arlington, Virginia, based firm is under contract by FPM to develop a program for development of an aerial spray application planning and decisionmaking system (APADS). Using the Forest Service CBG Spray model as a building block, Ketron will identify all factors which affect the spray from the time it is released to its ultimate deposit or vaporization. Attention is being given to both herbicides and insecticides. The product of this contract will be a plan ultimately leading to more efficient and safer use of pesticides. Jack Barry is the FS Technical Coordinator of this project and John Week is managing the contract for Ketron.

SURVEYS TO ESTIMATE ROOT DISEASE LOSS TO BEGIN

A special working group to implement sampling procedures for root diseases was established and the first meeting was held in Davis in January. Participants included FPM Pathologists from the western Regions, MAG, Forest Service Research Stations, and University Scientists from Berkeley, California; Moscow, Idaho; and British Columbia. Dave Drummond planned, organized and chaired the session as one of his last duties as MAG's Plant Pathologist.

The long term goal for the group is to estimate growth loss and tree mortality due to root diseases by landownership and states. Initial objectives were to: (1) review and discuss existing sampling systems for root diseases (2) select the most promising system, and (3) conduct a pilot test this field season.

It was decided that FPM personnel would, with Randy Fuller (Plant Pathologist, Rocky Mountain Region, R-2, Denver, Colorado) as coordinator, outline a procedure that can be used in the southwest during this upcoming field season. Under Randy's guidance the technical aspects of the proposed survey in Region 3 will be outlined and distributed to the participants for review. Ed Wood, (Plant Pathologist, Southwestern Region, R-3, Albuquerque, New Mexico) will also develop a work plan and provide overall leadership to the survey.

FPM personnel from each Region are expected to maintain close contact with Randy over the next year to help all Regions develop the procedures that could be used for such a survey in their own areas.

UPDATE ON GEOGRAPHIC INFORMATION SYSTEM

To assist the regions in meeting FIDIS reporting requirements, MAG has submitted a new request for desk-top graphics hardware under the Lot 7 Intelligent Graphics Systems procurement. Each of the requested Lot 7 systems will consist of a central processing unit (CPU) with telecommunications capability, off-line storage and printer. In addition, MAG will initiate a separate procurement action to obtain a large digitizer and plotter for each system.

A system similar to this is being used in Region 4. Ron Beveridge, R-4, has developed software which enables him to produce summaries of acres infested by ownership for the FIDIS reports.

We expect the system to work this way: Sketch maps from aerial surveys showing infested areas will be digitized using a large, backlit digitizer interfaced with the CPU. The data will be stored and can be edited on-site with the system software. Maps of ownership can be digitized and edited separately. These data can be transmitted to the Ft. Collins Computer Center (FCCC), where the RIDS*POLY program can perform the overlays to develop acreage summaries by ownership. The graphics system will be able to output this information in tabular form or plot it on maps.

CONTRACTOR TO EVALUATE SPRAY DRIFT

Environmental Systems Corp. (ESC) of Santa Barbara has been awarded a contract to conduct an evaluation of spray drift. ESC, a firm with extensive field experience in meteorology and air pollution studies, will conduct a series of trials in mountainous terrain and measure the drift of a dyed non-toxic spray from the spray block. The contract was initiated in response to the realization that little quantitative data exists on how much spray drifts beyond the target. Trials are scheduled during June 1981 at a site yet to be selected. Jack Barry, the Contracting Officer's Representative, also will coordinate a follow-up comparison of model predictions to field data.

Ron Beveridge of the Boise, Idaho FPM Field Office demonstrates Geographic Information System in the Boise National Forest Supervisors Office to Jule Caylor (R-5.

SECOND GENERATION PANORAMIC AERIAL CAMERA NOW AVAILABLE

An advanced version of the Itek KA80A optical bar panoramic camera, designated the IRIS II, is now available through the NASA-Ames Research Center. This camera system has higher image resolution capabilities than the KA80A which has been used for several forest pest management applications. Evaluation of photography obtained by the IRIS II over California by the Nationwide Forestry Applications Program in Houston, Texas, confirms its superior image quality.

A demonstration of the IRIS II camera for estimating barkbeetle losses is planned for 1981 over portions of Wyoming, northern Utah, and eastern Idaho. FPM staffs in the Rocky Mountain Region (R-2), Intermountain Region (R-4) and MAG are cooperating in this demonstration.

INTERNAL REVIEW OF MAG CONDUCTED

An internal review of MAG was conducted during January by a team of Forest Pest Management (FPM) specialists. Purpose of this review was to assess program accomplishments over the past five years, recommend future direction, and identify alternative means by which specialist services can be provided more efficiently to Region/Area FPM staffs. The review team consisted of David Graham, Assistant Director of Forest Pest Management in Washington, D.C.; Peter Orr, Forest Pest Management Director, Northeastern Area, Broomall, Pennsylvania; Max Ollieu, Forest Pest Management Director, Intermountain Region (R-4) Ogden, Utah; and Bill Ciesla, MAG Group Leader.

The review team concluded that a central pool of specialists working nationally to support FPM staffs in Regions/Areas is a viable concept. A series of problem areas were identified and recommendations for future action were developed. A final report and action plan is being prepared.

STATEWIDE MOUNTAIN PINE BEETLE SURVEY WITH PANORAMIC PHOTOGRAPHY COMPLETED

An operational demonstration of the use of panoramic aerial photography for obtaining statewide estimates of loss caused by the mountain pine beetle in ponderosa pine in Colorado has been completed. Participants in this survey included the FPM staff of the Rocky Mountain Region (R-2), Lockheed Electronics Corporation and MAG. The survey involved several stages of aerial photo interpretation ranging from quick counts of sample cells to detailed photo interpretation and a ground sample.

Despite rather late acquisition of the aerial photography, ground crews were able to complete almost all of the field work before the coming of the winter snows. Data are now being analyzed and a report will be issued in the near future.

MAG STAFF ACTIVITIES

Allan Bullard, Survey Entomologist, MAG, has accepted the position of Northeastern Area Field Representative, FPM, Morgantown, West Virginia. Our best wishes to the Bullard family in their new location.

Dave Drummond, Survey Pathologist, MAG, has accepted the Southeastern Area Field Representative, FPM, position at Pineville, Louisiana. We also extend our best wishes to the Drummonds in their new location.

Jan Zacharias, Secretary, MAG received a cash award and Certificate of Merit for her outstanding efforts in compiling the proceedings of the 7th Biennial Workshop on Color Aerial Photography in the Plant Sciences; a series of manuscripts on panoramic photography; proceedings of an IPM workshop held in Denver, Colorado; and the final report of a special California Department of Forestry Integrated Pest Management Task Force. Congratulations, Jan.

Welcome to Sam Suznovich who has joined our staff as Clerk-Typist. Sam recently retired from the Air Force and lives with his family in Sacramento.

Dave Drummond was Chairperson for a workshop entitled "Technology Transfer Techniques, Examples and Ideas" at the Western International Forest Disease Work Conference in Pingree Park, Colorado.

Jack Barry led a workshop entitled "Large Scale Spraying--Will it ever be used Again", at the annual Western Forest Insect Work Conference in Banff, Alberta, Canada.

PAPERS PRESENTED

Barry, John W., Robert Ekblad and Larry Barber. 1980. Aerial application to coniferous seed orchards. Presented at the National Agricultural Aviation Association and American Society of Agricultural Engineers, Joint Session, December 1-4, 1980, Las Vegas, NV. Paper presented by Robert Ekblad.

Barry, John W., John Wong, Patricia A. Kenney. 1980. Deposition of pesticide droplets resulting from aerial application to conifers. Presented at the ESA National Meeting symposium on "Pesticide Spray Application", December 1, 1980, Atlanta, GA. Paper presented by John W. Barry.

Ekblad, Robert, John W. Barry and Harold Flake. 1980. Penetrating coniferous orchard canopy with aircraft wake. Presented at the National Agricultural Aviation Association and American Society of Agricultural Engineers, Joint Session, December 1-4, 1980, Las Vegas, NV. Paper presented by Robert Ekblad.

PUBLICATIONS

Bullard, Allan T., and John Wong. 1981. Evaluation of multiple regression models for prediction of western spruce budworm defoliation on Douglas-fir. USDA For. Serv. FPM/MAG, Davis, CA. Rpt. No. 81-1.

Ciesla, W.M. and R.L. Livingston. 1980. Using the D-MAX Method for estimating atomization of water-base sprays. J. Econ, Entomol. 73:615-616.

Dumbauld. R.K., J.R. Bjorklund and S.F. Saterlie. 1980. Computer models for predicting aircraft spray dispersion and deposition above and within forest canopies: user's manual for the FSCBG computer program. USDA For. Serv., FPM/MAG, Davis, CA Rpt 80-11.

Drummond, D.B., S. Hubbard, and J.W. Barry. 1981. Evaluation of the spray nozzle type and configuration in the application of spore suspensions of the fusiform rust fungus to southern pines. USDA For. Serv., FPM/MAG, Davis, CA Rpt. 81-2.

Johnson, D.W., F.G. Hawksworth, and D.B. Drummond. 1980. 1979 dwarf mistletoe loss assessment survey on national forest lands in Colorado. USDA For. Serv., FPM/MAG, Davis, CA Rpt. No. 80-6.

Singer, James. 1980. Pesticide safety--Guidelines for personnel protection. USDA For. Serv., FPM/MAG, Davis, CA.

Wong, John and B. Danielson. 1980. An interactive program for the Douglas-fir tussock moth stand outbreak model. USDA For. Serv., FPM/MAG, Davis, CA Rpt. No. 80-9.

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U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
FOREST INSECT & DISEASE MANAGEMENT
METHODS APPLICATION GROUP
DAVIS, CALIFORNIA 95616